Serial No. 09/438,885

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Changes Made," showing the current amendments to the specification and claims is attached hereto.

Please amend the above-identified application as follows:

IN THE SPECIFICATION:

Delete the paragraph beginning at page 4, line 16, and ending at page 4, line 21, and replace with the following:

A1

Especially by adopting a structure wherein liquid crystal which exhibits a cholesteric phase in a room temperature is filled between transparent plastic films, a liquid crystal display which is thin, light and strong against an external force (bend or shock) can be obtained, and this display is suited to be used as portable information equipment such as an electronic book, which is the aim of the present invention.

Delete the paragraph beginning at page 6, line 14, and ending at page 9, line 2, and replace with the following:

A2

These and other objects and features of the present invention will be apparent from the following description with reference to the accompanying drawings, in which:

Fig. 1 is a sectional view of an exemplary liquid crystal display according to the present invention;

Fig. 2 is a plan view which shows a film substrate of the liquid crystal display with a columnar structure and a sealant formed thereon;

Fig. 3 is an illustration which shows a manufacturing process of the liquid crystal display;

Fig. 4 is a block diagram which shows a matrix driving circuit for the liquid crystal display;

Fig. 5 is a chart which shows the waveforms of voltages applied in the

matrix driving circuit;

Fig. 6 is a graph which shows the relationship between the applied voltage in the matrix driving circuit and the Y value;

Fig. 7 is a chart which shows the waveforms of voltages which were experimentally applied to a test cell;

Fig. 8 is a chart which shows the waveforms of voltages applied for operation in a rapid mode;

Fig. 9 is a chart which shows a first exemplary waveform of a voltage applied for operation in an ordinary mode;

Fig. 10 is a chart which shows a second exemplary waveform of a voltage applied for operation in the ordinary mode;

Fig. 11 is a chart which shows a third exemplary waveform of a voltage applied for operation in the ordinary mode;

A2

Fig. 12 is a block diagram which shows a driving/image signal processing circuit used in an embodiment of the present invention;

Fig. 13 is a flowchart which shows a control procedure for operation in the ordinary mode;

Figs. 14a through 14d show images written by a first writing process, by a second writing process, by a third writing process and by a fourth writing process, respectively, in the control procedure shown by Fig. 13;

Fig. 15 is a flowchart which shows another control procedure of the liquid crystal display;

Fig. 16 is a block diagram which shows another exemplary driving circuit for the liquid crystal display;

Fig. 17 is a plan view of an exemplary electronic book type information display device, showing an exemplary display in the rapid mode;

Fig. 18 is a perspective view of an open book;

Fig. 19 is a plan view of the electronic book type information display device, showing another exemplary display in the rapid mode;

Fig. 20 is a plan view of the electronic book type information display device, showing another exemplary display in the rapid mode;

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Fig. 21 is a plan view of the electronic book type information display device, showing another exemplary display in the rapid mode;

Fig. 22 is a schematic side view of an example of the information display device provided with a front light;

Fig. 23 is an illustration of an exemplary display pattern on the liquid crystal display;

Fig. 24 is a flowchart which shows a control procedure for operation in the rapid mode;

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Fig. 25 is a flowchart which shows another control procedure for operation in the rapid mode;

Fig. 26 is a block diagram of a first exemplary information display system;

Fig. 27 is a block diagram which shows a control circuit built in an information display device in the system shown by Fig. 26;

Fig. 28 is a block diagram of a second exemplary information display system;

Fig. 29 is a plan view of an information display device provided with a speaker;

Fig. 30 is an illustration which shows a first exemplary recording media vending system; and

Fig. 31 is an illustration which shows a second exemplary recording media vending system.

Delete the paragraph beginning at page 25, line 2, and ending at page 25, line 17, and replace with the following:

A3

In the liquid crystal display 10, the display state of the liquid crystal is a function of the voltage applied and the pulse width. By resetting the whole liquid crystal to the focal-conic state wherein the liquid crystal shows the lowest Y value (luminous reflectance) and thereafter, applying a pulse voltage with a constant pulse width to the liquid crystal, the display state of the liquid crystal changes as Fig. 6 shows. In the graph of Fig. 6, the y-axis indicates the Y value, and the x-

axis indicates the voltage applied. When a pulse voltage Vp is applied, the liquid crystal comes to the planar state wherein the liquid crystal shows the highest Y value, and when a pulse voltage Vf is applied, the liquid crystal comes to the focal-conic state wherein the liquid crystal shows the lowest Y value. Also, when an intermediate pulse voltage between Vp and Vf is applied, the liquid crystal comes to an intermediate state between the planar state and the focal-conic state wherein the liquid crystal shows an intermediate Y value, and thus, a display of an intermediate color is possible.

A3

Delete the paragraph beginning at page 27, line 20, and ending at page 28, line 3, and replace with the following:

Fig. 7 shows waveforms (a) and (b) of pulse voltages applied to a test cell produced by the inventors as a trial. In the experiment, only one pixel was subjected. The voltage of the reset signal was 50V. The pulse width of the reset signal (the reset duration) was 200 msec in the case of (a) and 50 msec in the case of (b). As the selective signal to set the pixel to the planar state, 90V-Vc (110V) was applied for 5 msec. Although the voltage of the selective signal was set to 110V in the experiment, the signal may be of any other voltage. The voltage shall be determined depending on the material and the thickness of the liquid crystal and the pulse width of the signal.

A4

Delete the paragraph beginning at page 31, line 19, and ending at page 31, line 26, and replace with the following:

Fig. 13 shows a control procedure for a fade-in display of a multi-tone color image adopting the second exemplary drive in the ordinary mode shown in Fig. 10. In this control procedure, a pulse voltage is applied four times. The contrast becomes higher after every application of the voltage, and after the fourth application, a complete color image is displayed. If a command for a display of another image is inputted in the middle of four applications of the pulse voltage,

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the display will change to the new image, and this is seen as operation in the rapid mode.

Delete the paragraph beginning at page 34, line 11, and ending at page 34, line 19, and replace with the following:

A6

The controller 24 has an internal timer, and a predetermined time is set in the timer. When the time has passed, the scan signal controller 23 and the data signal controller 24, while referring to the addresses stored in the address storage 42, send control signals to the scan signal driving IC 21 and the data signal driving IC 22 for rewriting of only the parts. Thereby, the scan signal driving IC 21 and the data signal driving IC 22 drive only the parts of the liquid crystal to be rewritten. In this driving method, rewriting of only the parts to be rewritten is possible, and this is more speedy than rewriting of the entire display.

Delete the paragraph beginning at page ~~36~~, line 23, and ending at page 37, line 7, and replace with the following:

A7

The quantity of reflected light of the liquid crystal display 10 is lowered at night and in a dark room. As Fig. 22 shows, in order to compensate a loss in the quantity of reflected light, a front light 47 and a diffusing plate 48 are provided on the front side of the liquid crystal display 10. The turn-on/turn-off of the front light 47 and regulation of the quantity of light are controlled based on the detection result of a light receiving sensor 49 shown in Fig. 17. When the detection result is lower than a specified value, the quantity of light emitted from the front light 47 is increased, and when the detection result is above the specified value, the quantity of light emitted from the front light 47 is fixed to a low value, or the front light 47 is turned off.